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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RYOSAKU INAMURA, KAZUMASA SHIMODA,
TOSHIO SUGIMOTO, and TAKUYA UZUMAKI

Appeal 2008-3640
Application 10/718,202
Technology Center 2600

Oral Hearing Held: November 18, 2008

Before JOSEPH F. RUGGIERO, ROBERT E. NAPPI, and CARLA M. KRIVAK, Administrative Patent Judges

ON BEHALF OF THE APPELLANTS:

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The above-entitled matter came on for hearing on Tuesday, November 18, 2008, commencing at 9:00 a.m., at The U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Laura P. Platt.

THE CLERK: Calendar Number 35, Appeal Number 2008-3640, Mr. Folker.

JUDGE RUGGIERO: Good morning.

MR. FOLKER: Good morning. First I'd like to explain a few details of the invention that may not really --

JUDGE RUGGIERO: Before you start, do you want to spell your name?

MR. FOLKER: Yes, sorry. James Folker, F-O-L-K-E-R.

First I'd like to explain some details of the invention that may not have jumped out at you in the briefs, and then I will discuss the rejection. Of course, there's only a single rejection. And I will try to answer any questions that you have.

We don't have a board in here, do we?

JUDGE NAPPI: There's a white board.

MR. FOLKER: Okay. Very good.

This invention is related to a perpendicular magnetic recording. It's got a magnetic layer, and the magnetism in the magnetic layer is perpendicular to the surface. So it's up and down.

It's got a second layer, a backing layer, which has magnetism in the -- in plane direction, perpendicular to the other, to the magnetic recording layer.

And the purpose of this secondary layer is to -- the purpose of the secondary layer is to aid in the writing process of this magnetic layer. But it strengthens -- it helps to strengthen this magnetization. But there's a problem when they're reading these in this type of device. It is this extra magnetism in the bottom causes noise.

So the purpose of this invention was to keep the benefit of this secondary layer, this lower layer which helps in the writing process, but to eliminate the noise in the reading process.

So how they did that is they chose a layer, a material for this secondary layer, this backing layer that had a specific compensation temperature. The compensation temperature is -- I'll pull the drawings.

The compensation temperature, if you'll turn to figure 2 in our application, if you have that handy. I could actually draw it up here also. It's easy enough, which figure 2 is a graph of the magnetization and the temperature. Our figure 2 also has a course and recourse, but we don't need to talk about that right now.

In this material at the compensation temperature, which is down here, the magnetization is zero or near zero.

So what they've done for our invention is in this backing layer, they've chosen the material -- they've set the compensation temperature for this material, because I believe it can be adjusted by the choice of material and the crystallization, by changing different parameters.

They've set the compensation temperature for the backing material so that it is effectively zero. So the magnetization is effectively zero at the -- let me make sure I don't mix it up -- at the reading, when you're reading the magnetization.

So by doing that, by setting the compensation temperature at that point, when you are reading, it doesn't cause the problems of noise. But when they're writing, they still get the benefit of the secondary magnetic layer.

So that compensation temperature is basically set to be close to what

the environment that this medium will be in within the disk drive.

So during the normal reading operation, this secondary layer is at the compensation temperature, so it's really playing a very minimal -- the magnetization of it is playing almost no role, so it doesn't cause the problems of the noise.

JUDGE RUGGIERO: But when you are writing, you have to get away from the compensation temperature?

MR. FOLKER: Yes, when you are writing, you are away from the compensation temperature. We do that by either heating or cooling the disk, which isn't in our claims right now because these claims are directed to the medium itself.

We do have other claims that were allowed, and we separated those to a divisional application. I'm not sure where the prosecution on that is. They're allowed in the parent application. Anyway, we have apparatus claims to the whole disk drive which does include the means for heating or cooling, but it was tough to put that into the medium claims.

Actually, in figures 3A and 3B, you could just see the -- of our application, Figure 3A is the recording or writing process where the backing layer is magnetized. The magnetization is effective because we apply heat or cool to get away from that compensation temperature.

Figure 3B shows where there's no heating or cooling and the magnetization of this secondary layer has dropped out.

So there's only one rejection in this case, and it's a 103 rejection. It's a combination of an Akiyama patent with a Japanese patent number 2-227814. I think I'll refer to it as JP-814.

The Akiyama patent, prior art 1, is also a two layer. The relevant

layers are two layers. There's a perpendicular magnetic recording layer to go either way, up or down, perpendicular to the surface. And there's a backing layer which the magnetization is in plane, same magnetization direction as our invention.

But the difference is that the Akiyama reference does not have any discussion of the compensation temperature. They don't discuss heating or cooling to get away from the compensation temperature. They don't mention it at all.

So the examiner relied on a secondary reference, JP-814, which is also magnetic recording medium. Magnetic layers are also perpendicular to the surface. But in this one the layer directly below the magnetic layer is perpendicular to the surface as well.

This one does talk about the compensation temperature. I believe it talks about it a little more broadly than we are discussing it because it says in the English abstract that the compensation temperature exists in the recording and reproducing range. So it's broader than our invention which the compensation temperature is just in the reproducing range, the reading range.

So our argument is basically twofold. Our first portion of the argument is that one ordinarily skilled in the art wouldn't have taken -- wouldn't have looked to this secondary layer of JP-814 to modify the first priority, the Akiyama reference, because it's in a different -- the magnetization is in a different direction.

I think the direction of the magnetization is important because of the interaction here between the two layers. So the Akiyama talks about the benefits of this type of interaction, and JP-814 talks about the benefits of this

type of interaction.

I think our secondary argument, which is also outlined in the brief, is that even if somebody was going to consider this backing layer of JP-814 and modify the Akiyama reference based on that, they would have taken the entire structure of it.

They would have taken the material. They would have also taken the magnetization direction, because both of those are important features to get the benefits of what JP-814 teaches.

So the argument is that if you just choose the materials and the compensation temperature without also taking the magnetization direction, you are choosing impermissible hindsight to come back to arrive at our invention because you're just picking and choosing certain features but not the entire structure of the secondary reference.

You take that layer basically as a whole with the structure as it is with the materials and the compensation temperature.

JUDGE RUGGIERO: Do you actually have an English translation of the --

MR. FOLKER: I wish I did. I do not currently.

JUDGE RUGGIERO: They look like, just going back to the early prosecutions, it looked like arguments coming from your side, it looked like they were referring to some kind of English translation.

MR. FOLKER: Our clients are Japanese, and they translated a few paragraphs of it and sent that to us. We didn't put those translations in the brief. They were in the prosecution.

JUDGE RUGGIERO: You don't have them.

MR. FOLKER: I don't have a full translation.

JUDGE RUGGIERO: We don't have one.

MR. FOLKER: It's not in the record.

JUDGE RUGGIERO: We are trying to get one.

MR. FOLKER: Okay. We could get one from the client, given some time. We just don't have one now. I understand they're relatively expensive to get.

JUDGE RUGGIERO: So basically your position is that the reason that JP-814, which is the high density recording, is because of the magnetization direction?

MR. FOLKER: Yes. From what I could tell, the teaching is related to the magnetization direction as well as the compensation temperatures. And this first prior art is similar. They teach the benefits of magnetization directions. They don't teach the compensation temperature.

In this first prior art, the Akiyama reference, they did discuss this kind of relationship of JP-814, two layers, both perpendicular magnetization. It says that in the background.

They specifically changed that to be like this to get away from noise. I think there's some noise that these -- I don't understand fully -- but there's a shifting, I believe, in the magnetic bits a little bit, and that causes problems at the shift, at the discontinuity.

I'll check my notes, but I believe that's it, and I'm open for questions.

JUDGE RUGGIERO: Any questions?

We don't have any questions.

MR. FOLKER: Okay. Just one more minute. No, I have nothing further.

(Whereupon, the proceedings at 9:46 a.m. were concluded.)